CLAIMS

1. A method of determining completion of coin insertion that determines whether or not a required number of coins have been inserted into a coin holding portion of a coin collecting device for a vending machine that includes a coin path having the coin holding portion where the required number of coins for purchasing an article are held in a row, comprising:

providing the coin holding portion that is constructed so that the coins held in a row therein are electrically connected to each other in series;

providing a first electrode, which comes into contact with the coin located at one end of the row, to the coin holding portion;

providing a second electrode, which comes into contact with the coin located at the other end of the row, to the coin holding portion; and

determining completion of insertion of the required number of coins, based on whether or not an electric current flows between the first and second electrodes.

2. The method of determining completion of coin insertion according to claim 1, further comprising changing a total of the required number of coins by changing an installation position of at least one of the first and second electrodes.

3. The method of determining completion of coin insertion

according to claim 1, further comprising determining whether or not a forged coin is inserted, based on the value of the electric current.

4. A coin collecting device for a vending machine comprising:

a collecting device body that includes a coin path having a coin holding portion disposed therein, where a required number of coins for purchasing an article are held in a row;

a coin-insertion completion determining means that determines whether or not the required number of coins have been inserted into the coin holding portion; and

a coin collecting mechanism that operates in concert with a dispensing operation of an article to move the coins from the coin holding portion into a coin box,

the coin holding portion being constructed so that the coins held in a row therein are electrically connected to each other in series,

the coin-insertion completion determining means including a first electrode that comes into contact with the coin located at one end of the row and a second electrode that comes into contact with the coin located at the other end of the row, and being constructed to detect that the insertion of the required number of coins has been completed by detecting an electric current flowing between the first and second electrodes.

5. The coin collecting device for a vending machine according

to claim 4, wherein the first and second electrodes are constructed in such a manner that an installation position of at least one of the first and second electrodes is movable.

6. The coin collecting device for a vending machine according to claim 4, wherein the coin holding portion is constructed in such a manner that the one end of the row is positioned lower than the other end of the row and that the required number of coins are all held erect and side by side from the one end toward the other end.

7. A coin collecting device for a vending machine comprising:

a collecting device body that includes a coin path having a coin holding portion where a required number of coins for purchasing an article are held in a row;

a coin-insertion completion determining means that determines whether or not the required number of coins have been inserted into the coin holding portion; and

a coin collecting mechanism that operates in concert with a dispensing operation of an article to move the coins from the coin holding portion into a coin box,

the coin holding portion being constructed so that the coins held in a row therein are electrically connected to each other in series,

the coin-insertion completion determining means including a first electrode that comes into contact with the coin located at one end of the row and a second electrode that comes into contact with the coin located at the other end of

the row, and being constructed to detect that the insertion of the required number of coins has been completed by detecting an electric current flowing between the first and second electrodes,

the first and second electrodes being constructed in such a manner that an installation position of at least one of the first and second electrodes is movable,

the coin holding portion being constructed in such a manner that the one end of the row is positioned lower than the other end of the row, and that the required number of coins are all held erect and side by side from the one end toward the other end.

8. The coin collecting device for a vending machine according to claim 7, wherein the first electrode is constructed to come into contact with an upper peripheral portion of the coin held at the one end in the coin holding portion; and

the second electrode is constructed to come into contact with a lower peripheral portion of the coin held at the other end in the coin holding portion.

9. The coin collecting device for a vending machine according to claim 8, wherein the coin holding portion includes two plate members spaced apart in a thickness direction and an opposing surface opposing a bottom opening formed between the two plate members, and is constructed so that the coins are held between the two plate members with an outer peripheral portion thereof being in contact with the opposing surface; and

both upper end portions of the two plate members are disposed to be able to swing via a hinge mechanism; and

the coin collecting mechanism is constructed so that, when the two plate members are swung to one side, the row of coins is brought out of alignment with the opposing surface to drop down from between the two plate members into a coin box.

10 The coin collecting device for a vending machine according to claim 9, wherein the second electrode is disposed on the opposing surface; and

the first electrode is constructed as a pin-shaped electrode piercing through the two plate members.

11. The coin collecting device for a vending machine according to claim 10, wherein the installation position of the first electrode is constructed to be movable;

an electrode holding structure includes an electrode holder that holds the pin-shaped electrode, and is constructed so that, when the two plate members swing toward the coin collecting side where the coins are collected, the electrode holder also swings along with the two plate members; and

the pin-shaped electrode constitutes a means for determining the number of the coins entering between the two plate members.

12. The coin collecting device for a vending machine according to claim 11, wherein a base body provided with the opposing

surface is formed with a slide groove disposed below, and extending parallel to, the opposing surface;

a part of the electrode holding structure is slidably fitted in the slide groove;

a plurality of positioning grooves or recesses are formed at intervals along the slide groove between the slide groove and the opposing surface; and

the electrode holding structure is provided with a positioning portion to be fitted in the positioning grooves or recesses.